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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/067.441

02/04/2002

Jeffrey P. Kotowski

NSC1-G9800 [P05051]

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7590

01/28/2004

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EXAMINER

HUR, JUNG H

ART UNIT

PAPER NUMBER

2824

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,441

Applicant(s)

KOTOWSKI ET AL.

Examiner

Jung (John) Hur

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7,8,10-13,16-27,33,34 and 36-40 is/are allowed.
- 6) ☒ Claim(s) 1-6,9,14,15,28-32,35 and 41-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION

Amendment

1. Acknowledgment is made of applicant's Amendment, filed 31 October 2003. The changes and remarks disclosed therein were considered.

No claims have been cancelled or added. Therefore, claims 1-44 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 9, 28-32 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kon (Japanese Pat. Appl. Pub. No. 02-188836) in view of Knotz (U.S. Pat. No. 6,289,055).

Regarding claims 1, 2, 28, 29 and 41-44, Kon in Figs. 1 and 2 discloses an integrated circuit (6) and a method for controlling an operational circuitry within the integrated circuit, comprising: an external node (10); at least one additional external node (for example, 9 or 11 or any of the others of the integrated circuit 6); operational circuitry (as a part of the integrated circuit 6), wherein the operational circuitry is configured to operate in response to a control signal and at least one additional control signal (inherent in the integrated circuit 6 as a microcomputer, including enable and clock signals); and test circuitry (including 14, 15 and 16) coupled to the external node and the operational circuitry, wherein the test circuitry is configured

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to operate in at least one test mode in response to test data (signal f) received at the external node from an external source (including 1), and the test circuitry is configured to assert to the operational circuitry a control signal (based on the output signals TM's from 16) in response to an external control signal (for example, signal d).

However, Kon does not disclose that the external control signal is received at the same external node for receiving the test data, and that the test circuitry is configured to extract the test data from an amplitude-modulated input signal asserted to the external node from the external source, and to generate the control signal in response to the input signal.

Knotz, for example in Figs. 6, 7 and 10, discloses an external control signal (for example, EN) received at the same external node (for 3) for receiving data (SD), and that the receiving circuitry (including 3) is configured to extract the data (SD' at the receiving side) from an amplitude-modulated input signal (m) asserted to the external node from the external source (including 1).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the means of transmitting signals, as disclosed in Knotz, in the test circuit of Kon, such that signals a, d and f of Kon would correspond to signals SC, EN, and SD of Knotz, respectively, and therefore the control signal of Kon would be generated in response to the input signal m of Knotz, for the purpose of further reducing the number of signal pins or leads necessary for controlling a test circuitry or an operational circuitry in an integrated circuit (see, for example, Knotz, column 1, lines 17-21).

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When Kon and Knotz are combined as above, the combination of Kon in view of Knotz further discloses the following:

Regarding claims 3, Kon in view of Knotz further discloses that the external control signal (EN' of Knotz, at the receiving side) is a binary signal determined by the input signal (extracted from the input signal m of Knotz), and the test circuitry is operable in a mode in which the control signal is a binary signal (inherent in 6 of Kon) whose state is determined by the state of the external control signal (via 12-16 of Kon).

Regarding claims 4, 30 and 31, Kon in view of Knotz further discloses that the test circuitry is configured to extract a clock signal (SC' of Knotz, at the receiving side) from the input signal, and to operate in response to the clock signal during said at least one test mode (via 12-14 of Kon).

Regarding claims 5, 6 and 32, Kon in view of Knotz further discloses, particularly in Figs. 6, 7 and 10 of Knotz, that the input signal has at least three levels, including a low level (L) below a first threshold (V3), a high level (H3) above a second threshold (V1), and an intermediate level (H1 or H2) between the first threshold and the second threshold, and wherein the test circuitry includes: first comparator circuitry (33), coupled to receive the input signal and configured to operate in a first mode in which said first comparator circuitry generated a first signal (EN') indicative of whether the input signal has a level less than the first threshold; second comparator circuitry (31), coupled to receive the input signal and configured to operate in a first mode in which said second comparator circuitry generates a second signal (S₃₁) indicative of whether the input signal has a level greater than the second threshold; and a flip-flop (6) having a set terminal (S), a reset terminal (/R), and an output (Q), wherein the set terminal is coupled to

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receive the second signal, the reset terminal is coupled to receive the first signal, the output asserts a data signal (SD') in response to the first signal and the second signal, and the data signal is indicative of the test data (signal f of Kon represented by SD and SD' of Knotz, wherein SD' is a regenerated data signal; see, for example, column 3, line 65 through column 4, line 4).

Regarding claim 9, Kon in view of Knotz further discloses that the test circuitry includes a comparator circuitry (including 3 and 6 of Knotz) coupled and configured to receive the input signal, to extract the test data (SD' of Knotz, or signal f of Kon) from the input signal, and to extract a latch signal (EN' of Knotz, or signal d of Kon) from the input signal, wherein the latch signal is indicative of whether the input signal has a level exceeding a latch threshold (V3 of Knotz); and at least one register (15 of Kon; also, R in Fig. 10 of Knotz) coupled to the comparator circuitry for receiving the latch signal (via 12-14 of Kon) and at least some of the test data (SD' of Knotz, or signal f of Kon).

4. Claims 14, 15, and 35, insofar as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kon (Japanese Pat. Appl. Pub. No. 02-188836) in view of Knotz (U.S. Pat. No. 6,289,055) as applied to claims 1 and 28 above, and further in view of Kato (U.S. Pat. No. 5,557,571).

Regarding claims 14, 15, and 35, Kon in view of Knotz discloses an integrated circuit and a method as in claims 1 and 28 above, with the exception of the test circuitry configured to assert data to the external node, for transmission to external circuitry during a measurement mode.

Kato discloses a circuitry configured to assert signal to the external node during a measurement mode (see, for example, column 5, lines 17-30 with reference to Figs. 1 and 7).

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the test circuitry of Kon in view of Knotz further in view of Kato to assert data to the external node during a measurement mode, for the purpose of not having to provide an extra pin for such function (see Kato, for example, column 5, lines 14-16).

Allowable Subject Matter

5. Claims 7, 8, 10-13, 16-27, 33, 34, and 36-40 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 7, 8, 10-13, 16-20, 25-27, 33, 34, and 36-40, the reasons for the indication of allowable subject matter are on record in the file.

Regarding claims 21-24, the prior arts of record do not disclose or suggest a test circuitry wherein "the control signal has a state determined by the input signal but not by the test data."

Response to Amendment/Arguments

6. Applicant's arguments regarding claims 1, 3 and 28, filed 31 October 2003, have been fully considered but they are not persuasive.

Applicant argues on page 18, paragraph 3, that "Applicants can identify no indication in Kon that the test mode control signals generated by test mode decoder 16... are used by operational circuitry" and in paragraph 4 that "there is no teaching or suggestion that Kon's integrated circuit includes test circuitry (coupled to an external node) configured...to assert to operational circuitry a control signal in response to an external control signal received at the external node (i.e., the same external node at which the test data are received), where the control

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signal has a state determined by the external control signal” (emphases added by Applicant).

Similar arguments are presented on page 19, paragraphs 1 and 2, and on page 20, in the first full paragraph.

In response, it is noted that although an operational circuitry of Kon’s integrated circuit (microcomputer 6 in Fig. 1 of Kon) is not shown, it is inherent that the purpose of having a test circuitry is to test an operational circuitry. Therefore, the test circuitry of Kon would be coupled to an operational circuitry, and based on the test mode selected, the test circuitry would control the operational circuitry by asserting a control signal to the operational circuitry. In Kon, since the external control signal (d) is coupled to the test mode decoder (16), the external control signal determines the state of the test mode control signals (TM’s) which in turn would determine the state of the control signal used to control the operational circuitry. In other words, as recited in claims 1 and 28, the test circuitry asserts the control signal to the operational circuitry in response to the external control signal, wherein the control signal has a state determined by the external control signal. Further, when combined with Knotz’s teaching, the external control signal and test data would be received at the same external node.

Applicant also argues, on page 19 in the last paragraph through the top of page 20, that Knotz includes “no teaching or suggestion that such a modulated signal should be asserted to ‘test circuitry’”

In response, one of ordinary skill in the art would apply the Knotz’s means of reducing the number of pins for transmitting multiple signals to the Kon’s integrated circuit with a test circuitry, for the purpose already recited in the previous Office Action.

7. Regarding amended claim 21 and its dependent claims, Applicant's arguments, on page 19, in the middle of paragraph 1, with respect to the rejection(s) of claim(s) 21 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Particularly, in claim 21, Applicant further narrowed the scope of the claim by inserting in lines 10 the limitation "such that the control signal has a state determined by input signal but not by the test data." Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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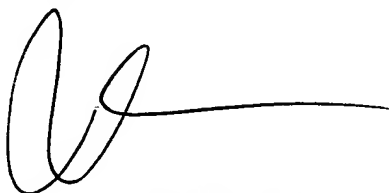
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung (John) Hur whose telephone number is (571) 272-1870.

The examiner can normally be reached on M-F 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

jhh

A handwritten signature in black ink, consisting of a large, stylized 'R' followed by a horizontal line extending to the right.

RICHARD ELMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800